

## Sector Snapshot: Biomass Wood Pellets

Substitution of coal with biomass in several EU Member States, South Korea, and Japan to meet carbon emission targets is driving demand for biomass pellets. This also has spurred U.S. and European investment in several new Southeastern United States pellet mills. Asian markets remain largely untapped by U.S. exporters. However, South Korea's policy mandate to escalate its use of biomass and a desire for high quality pellets have resulted in a dramatic increase of U.S. pellet exports to Asia over the past two years.

Biomass power uses organic matter (wood, agricultural waste, etc.) or inorganic matter like municipal solid waste to create electricity or heat. Wood pellets and wood chips are the most commonly used fuel in biomass power plants. Pellets are usually created from forest thinning, scraps, and other residues of low economic value in the timber industry. The compression of the wood creates a higher BTU than typical biomass sources.

### Overview of Global Export Market Opportunities

Over the next two years, ITA expects biomass pellet consumption in the top ten U.S. export markets to

average 24 billion kg annually. The United Kingdom, which continues to ramp up its use of biomass power, will account for over one-fourth of the total consumption globally and will represent the largest pellet market for the United States.

South Korea will continue being the largest consumer in Asia, and will look to foreign suppliers for nearly all of its wood pellet needs. Japan's market is growing but the import level is less than half of consumption.

In terms of volume, the United States is firmly positioned as the largest exporter of wood pellets in the world. (Figure 2a) However, it is notable that in 2014, other exporters were rapidly gaining market share. This is particularly notable in Southeast Asian countries (Figure 2b), which have been responding to increased demand in South Korea and Japan. Although Vietnam's 2014 trade data is not included on this table, the wood pellet imports reported by Japan and Korea combined in 2014 exceeded 745 million kg.

### The Pellet Export Opportunity in the Near-Term

The results showing mostly European countries as top prospects for U.S. wood pellet exports are in line with expectations. According to Global Trade Information Services, the United States was the leading exporter of wood pellets to the EU in 2014, capturing 58 percent of the EU's import market.<sup>95</sup> The top EU markets for U.S. pellet exporters were the UK (71 percent share of EU imports), Belgium (10 percent), and the Netherlands (5 percent). EU imports have steadily increased in the last three years, with imports of 4.5 million metric tons (MT) in 2012 and imports of 6.6 million MT in 2014.

**Figure 1: Biomass Wood Pellet Exports**  
2015-2016

Rank	Country
Strong Prospects	1 <b>United Kingdom</b> <i>Large market; large share</i>
	2 <b>Belgium</b> <i>Large market; large share</i>
	3 <b>Italy</b> <i>Large market; large share</i>
Less Certain Export Growth	4 <b>Netherlands</b> <i>Small market; large share</i>
	5 <b>Denmark</b> <i>Large market; large share</i>
	6 <b>South Korea</b> <i>Large market; small share</i>
	7 <b>Sweden</b> <i>Large market; small share</i>
	8 <b>Canada</b> <i>Small market; small share</i>
Significant Obstacles	9 <b>Germany</b> <i>Large market; small share</i>
	10 <b>Japan</b> <i>Small market; small share</i>
	11 <b>France</b> <i>Small market; small share</i>

**Figure 2a: Top Exporters of Wood Pellets (kg)**

	2012	2013	2014
<b>USA</b>	1,898,124,809	2,882,516,750	4,005,057,299
<b>Canada</b>	1,369,181,165	1,640,347,477	1,637,589,402
<b>Latvia</b>	901,960,000	1,055,929,000	1,248,355,000
<b>Russia</b>	728,382,377	740,691,523	879,007,109
<b>Portugal</b>	575,450,000	776,743,000	749,434,000
<b>Estonia</b>	430,424,000	623,175,000	640,839,000
<b>Germany</b>	848,778,000	720,228,000	627,088,000
<b>Austria</b>	476,312,000	482,799,000	480,854,000
<b>Romania</b>	276,701,000	457,488,000	412,916,000
<b>Lithuania</b>	264,998,000	321,479,000	300,066,000

**Figure 2b: Asian Wood Pellet Exporters**

	2012	2013	2014
<b>Vietnam</b>	0	132,397,713	N/A
<b>Malaysia</b>	0	81,672,135	168,558,621
<b>China</b>	2,727,573	3,293,467	163,209,250
<b>Thailand</b>	631,435	18,158,929	110,826,307

Source: GTA

Growth in imports to the EU is expected to continue, with projections ranging between 25 and 70 million MT by 2020. Germany and France in particular have large markets for wood pellets with demand expected to rise in the near term. They have relied on domestic production so far, but will need to increase imports to meet increasing demand created by carbon emission reduction policies. For in-depth analysis of EU markets for wood pellets, please see the EU case study.

In Asia, South Korea is likely to be the largest export opportunity for American exporters in the near term. In 2014, U.S. wood pellet producers exported nearly 61 thousand MT to South Korea. However, this only amounted to about three percent of the Korean market.<sup>96</sup> According to the government's targets, South Korea's wood pellet demand is projected to grow to 5 million MT by 2020. It also relies heavily on imports for forest products in general, with a forest products self-sufficiency rate of only 6 percent.<sup>97</sup> By comparison, a majority of the wood pellets used in China are expected to be manufactured in China, making import opportunities minimal despite the potential large size of the market.

While it may be difficult for U.S. suppliers to compete with Southeast Asian suppliers on the basis of price, the value proposition may be in the quality of the pellets. South Korea is starting to implement guidelines for wood pellets because pellets from Vietnam have been found to contain trace amounts of rice, which causes mechanical issues in the boilers of the biomass power plants.

Shipments of U.S. wood pellets to the United States' North American Free Trade Agreement (NAFTA) partners are surprisingly low. Canada's use of wood pellets has yet to catch up with production. If Canada expands its use of biomass to replace coal as a fuel source in the near term, then the United States should be able to capitalize on its existing trade relationship. The United States would be well positioned to supply pellets to Mexico, but new biomass electricity capacity is not expected to come online in the near term.

**Figure 3: Global Import Statistics, 2014**  
Commodity: 440131 (Wood Pellets), kg

Reporting Country	Quantity Imported
United Kingdom	4,715,090,000
Denmark	2,120,784,000
Italy	1,935,962,000
South Korea	1,849,641,264
Belgium	657,899,000
Sweden	521,604,000
Netherlands	383,215,000
Germany	370,207,000
Austria	341,682,000
USA	219,986,490
Slovenia	161,979,000
France	136,492,000
Japan	96,745,000
Latvia	87,793,000
Norway	73,298,880

Source: GTA

### Planning for the Long-Term

Beyond 2015, demand for wood pellets should continue to grow, particularly in markets where emissions policies encourage the use of co-firing. There is a possibility that the UK market will plateau after 2017. The European Commission (EC) stated that it will not adopt an EU-wide policy regarding sustainability certification for wood pellets until 2020.

Some EU member states, such as the Netherlands, have moved ahead with sustainability certification requirements. The effect of those requirements on U.S. suppliers remains to be seen. Despite significant evidence that forest growth in the United States exceeds the amount removed, voluntary U.S. private forestry initiatives may not be able to match EU requirements. While in the short term, U.S. exports to the EU will be minimally affected, there is a potential for U.S. exports to be completely disrupted in 2017 and beyond.

Regardless, the United States will have to protect its market share in many of its top markets, as Russia and its neighbors in the Baltic region increase production and as the strength of the dollar makes U.S. pellets more expensive. In many European countries, Russia was able to expand its market share by providing cheap wood pellets in 2014.<sup>98</sup>



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